ABSTRACT

A double-sides electrical interconnection flexible circuit particularly useful as a substrate for an area array integrated circuit package is described. A circuit having interconnection patterns on one surface and solder ball contact pads on the second surface are interconnected by solid copper vias formed from an array of raised studs etched from a metal matrix. In reel to reel format, the etched metal matrix is adhered to one surface of the film and forms the base metal for the solder ball contact pads. The matrix with studs are presses through the dielectric film with a copper layer on the opposite surface, thereby forming an intermediate structure for a flex circuit with self-aligned solid copper vias in a one step process. The contacts are reinforced by plating both surfaces with a layer of copper, and conventional processes are used to complete the circuit patterning.